



US009408882B2

(12) **United States Patent**
Dadachova et al.

(10) **Patent No.:** **US 9,408,882 B2**
(45) **Date of Patent:** **Aug. 9, 2016**

(54) **ORAL ADMINISTRATION OF MELANIN FOR PROTECTION AGAINST RADIATION**

(75) Inventors: **Ekaterina Dadachova**, Mahopac, NY (US); **Arturo Casadevall**, Pelham, NY (US)

(73) Assignee: **Albert Einstein College of Medicine, Inc.**, Bronx, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 65 days.

(21) Appl. No.: **14/005,601**

(22) PCT Filed: **Mar. 15, 2012**

(86) PCT No.: **PCT/US2012/029213**

§ 371 (c)(1),

(2), (4) Date: **Oct. 15, 2013**

(87) PCT Pub. No.: **WO2012/129047**

PCT Pub. Date: **Sep. 27, 2012**

(65) **Prior Publication Data**

US 2014/0037674 A1 Feb. 6, 2014

Related U.S. Application Data

(60) Provisional application No. 61/454,242, filed on Mar. 18, 2011.

(51) **Int. Cl.**

A61K 36/07 (2006.01)

A61K 36/06 (2006.01)

A61K 31/05 (2006.01)

A61K 31/136 (2006.01)

A61K 31/198 (2006.01)

A61K 9/00 (2006.01)

(52) **U.S. Cl.**

CPC **A61K 36/06** (2013.01); **A61K 9/0095** (2013.01); **A61K 31/05** (2013.01); **A61K 31/136** (2013.01); **A61K 31/198** (2013.01); **A61K 36/07** (2013.01)

(58) **Field of Classification Search**

None

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,227,459 A	7/1993	Pawelek et al.
5,776,968 A	7/1998	Berliner et al.
5,954,871 A	9/1999	Nicolas-Morgantini et al.
2006/0052438 A1 *	3/2006	Ho C07D 493/20 514/453
2007/0237829 A1 *	10/2007	Dadachova A61K 9/0019 424/489
2009/0328258 A1	12/2009	Dadachova et al.

OTHER PUBLICATIONS

Zhu et al. (Inhibition of quorum sensing in *Chromobacterium violaceum* by pigments extracted from *Auricularia auricular*, *Letters in Applied Microbiology* 52, 269-274, copyrighted 2011, revised 19 2010 and accepted Dec. 16, 2010, The Society for Applied Microbiology).*

PCT International Search Report dated Jun. 22, 2012 in connection with PCT International Patent Application No. PCT/US2012/29213, 5 pages.

PCT Written Opinion of the International Searching Authority dated Jun. 22, 2012 in connection with PCT International Patent Application No. PCT/US2012/29213, 5 pages.

Japanese Office Action dated Dec. 24, 2015 in connection with Japanese Patent Application No. 2014-501148, 2 pages.

* cited by examiner

Primary Examiner — Chris R Tate

Assistant Examiner — Randall Winston

(74) *Attorney, Agent, or Firm* — Amster, Rothstein & Ebenstein LLP

(57) **ABSTRACT**

Methods and compositions are provided for alleviating and/or preventing one or more side effects associated with exposure to radiation in a subject exposed to radiation or at risk for exposure to radiation comprising oral administration to the subject of an amount of an edible source of melanin effective to alleviate a side effect associated with radiation.

15 Claims, 16 Drawing Sheets